PCLU SYMPOSIUM
LEGAL AND ECONOMIC ISSUES SESSION

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Liability from Closed Landfills
Issues Confronting Private Landowners

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Developer's Landfill "Closure" Issues

- SWAT (Solid Waste Assessment Test) Investigation
- Soil Impacts
- Groundwater Impacts
- Methane Gas
- Leachate
- Other Issues (e.g. storm water runoff, refuse related nuisances etc.)

SWAT Investigation

- Components:
  - > Soil Borings (Sampling & Testing)
  - > Groundwater Monitoring Wells (Sampling & Testing)
  - > Soil Vapors (Sampling & Testing)
  - > Hazardous Substances
  - > Hazardous Wastes
  - > Methane Gas
  - > Poisonous Gasses (e.g. Hydrogen Sulfide)

Soil & Groundwater Impacts

- Soil Remediation

  (cost & complexity can vary widely)

- Groundwater Remediation

  (cost & complexity can vary widely)

- Leachate Remediation

  (cost & complexity can vary widely)

Methane Gas: Most Common Issue

- METHANE:

  Decaying Materials = Gas Production
- Decay Process = 30+ Years
- Methane is non-poisonous (unless combined with another gas)
- Methane is explosive
- Methane causes asphyxiation
- E.g. “Sago Mine”

Methane Gas: Most Common Issue

METHANE "MANAGEMENT":

- Methane Gas Collection (Passive or Active gas collection via subsurface piping with "Treatment" System ("Flare" or "Filtration")
- Methane Gas Monitoring
- Structural Modifications
- "Outreach" & Education

Developer's Landfill "Closure" Issues

- Remediation Plan
- Regulatory Approvals
- Capital Improvements
- Operations & Maintenance
- Monitoring
- Institutional Controls
- Financial Assurance

Remediation Plan

- Groundwater and/or Leachate and/or Methane Collection Treatment (monitoring wells, recovery wells & treatment system)
- Capital Costs:
  - > Environmental Consultant's Site Investigation
  - > Engineering Design
  - > Field Construction
  - > Agency Oversight Costs

Operation & Maintenance Plan

Operations & Maintenance Costs:

- Quarterly Air (GW) Sampling, Testing & Reporting
- Annual Systems Inspections & Testing
- Periodic Repairs
- Retrofit (10-15 year life span)

Developer's Landfill "Closure" Costs

Capital Costs and O&M Costs: Examples

- OII Landfill, Monterey Park
- Superfund Site
- Groundwater, Leachate, Methane Gas Recovery & Remediation
- Cost: Capital Costs= $17.6MM
  O&M Annual Costs= $6.3MM
  Total Costs (NPV)= $162MM

Developer's Landfill "Closure" Costs

Capital Costs and O&M Costs: Examples

- Orange County Residential Area Landfill
- Quarry Site filled with "Non-Haz" Solid Refuse
- Methane Gas Recovery & Remediation
- Cost: Capital Costs= $1.5MM
  O&M Annual Costs= $100k
  Total Costs (NPV)= $3.5MM

Developer's Landfill "Closure" Issues

Institutional Controls:

*"**Institutional controls** are actions, such as legal controls, that help minimize the potential for human exposure to contamination (or environmental risk) by ensuring appropriate land or resource use."*

Institutional Controls: Examples

Institutional Controls:

- Structure use restrictions
- Land use restrictions
- Natural resource use restrictions
- Well restriction areas
- Excavation restriction areas
- Deed restrictions
- Deed notices
- Declaration of environmental restrictions, registries.
- Access controls
- Monitoring requirements
- Site posting requirements
- Information distribution
- Notification in closure letter
- Restrictive covenants
- Federal/State/county/ local Registries

Institutional Controls: Costs

Cost Issues:

- Recurrent Costs: Quarterly, Annually, Semi-Annually
- Involves Government Oversight
- Involves Government and Private Consultant/Contractor Costs
- Who is responsible to perform long term?
- Who is responsible to pay long term?
- Cost range: $10k-$50k annually

Financial Assurance

Key issues:

- Passing on responsibility for a 30 year problem
- Longevity concerns: What company or organization can predict its longevity?
- Corporate/Project Dissolution & Wind Down Constraint
- HOA Management Personnel & “Attitudes” change frequently
- HOA “Institutional Knowledge” dissipates over time
- Is today’s budget realistic for tomorrow??
- What Developer wants to sock away $2MM-$5MM of Project profit for future O&M Costs??

Developer's Landfill "Closure" Issues

- Building Code Compliance
- Methane Vapor Migration
- Building Design Issues
- Utility Design Issues
- Open Space Design Issues

Building Code Compliance

Common Issues:

- Methane migration zone soils characteristics
- Methane source setback ordinances
- Methane levels
- “Active” Residential Structure Methane Barrier System ($7k-$10k per unit)
- “Active” Residential Structure Methane Barrier System ($2k-$5k per unit)

Utility Design & Construction

Common Issues:

- Wet Utilities: Trenching danger
- Dry Utilities: Spark danger
- Utility Vaults: Spark danger & asphyxiation danger
- Venting and barrier design components

Open Space Design & Construction

Primary Issue:

- Future excavation
- Greenbelts = methane barrier
- Methane gas collection pockets
- Excavation explosion risk
- Warning Signage

Developer's Landfill Disclosure Issues

Theme: One can never OVER-DISCLOSE!!!

- DRE "White Report"
- Covenants, Conditions & Restrictions ("CC&Rs")
- HOA Bylaws
- Sales Literature Disclosures
- Deed Restrictions
- Deed Notices/Disclosures
- Institutional Controls

Developer-HOA Dilemmas

WHERE DOES THE BUCK ($) STOP???:

- Who is to bear *anticipated* Future Costs (Developer vs. HOA)
- How to Fund Future Costs (Trust Deposit: HOA Assessments)
- Who is to bear *unanticipated* Future Costs (Developer vs. HOA)
- Who is to implement Future O&M (Developer, HOA, Third Party)
- What happens if HOA reneges on responsibilities?
- What is role of CIWMB or CUPA re financial assurance?

QUESTIONS
&
ANSWERS

THE END

THANK YOU

FOR

LISTENING!!